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THE REALIZATION OF ECONOMIC, SOCIAL AND CULTURAL RIGHTS

Note verbale dated 3 July 2000 from the Permanent Mission of Iraq to the United Nations Office at Geneva addressed to the Office of the High Commissioner for Human Rights

The Permanent Mission of the Republic of Iraq to the United Nations Office at Geneva presents its compliments to the Office of the High Commissioner for Human Rights and has the honour to enclose herewith* a document concerning environmental pollution resulting from the use of depleted uranium missiles during the aggression against Iraq.

The Permanent Mission of the Republic of Iraq would be grateful if the Office of the United Nations High Commissioner for Human Rights could have this document circulated as an official document of the fifty-second session of the Sub-Commission on the Promotion and Protection of Human Rights under the agenda item on the realization of economic, social and cultural rights.

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* The annex is reproduced either as received in Arabic, or in English only.

Annex

Environmental Pollution Resulting from the Use of Depleted Uranium Missiles during the Aggression against Iraq

A Study Submitted by the Government of the Republic of Iraq to the Fifty-Second Session of the Sub-Commission on the Promotion and Protection of Human Rights

Environmental Pollution Resulting from the Use of Depleted Uranium Missiles during the Aggression against Iraq

1. In 1991, Iraq was subjected to the greatest aggression witnessed in history in terms of the quality and quantity of the weapons used by the United States and Britain, including the unprecedented use of depleted uranium (DU) in international conflicts, producing serious and direct effects on health and the environment.

2. DU is a heavy and highly toxic element because it is characterized by radioactive and chemical toxicity. It accumulates in the human body and causes various diseases. It also causes large-scale pollution of the environment. Those effects are not limited to the bombed areas, they even extend to the water, soil and air, they may even last for hundreds of years, as indicated by specialized scientific studies and research.

3. According to United States Defense Department documents, the United States used 300 tons of DU in bombing Iraqi forces in the southern sector of the theatre of military operations, while information published by American Greenpeace and the Dutch LARNKA Foundation shows that 700-800 tons of DU were used in bombing Iraqi units during the same period.

4. Malcolm Rifkind, the former British Minister of Defence, admitted in a letter dated 6 December 1994 addressed to the British Member of Parliament Sir David Steel that British forces had used 88 missiles containing DU during the aggression against Iraq and that the United States had used many more. Mr. Rifkind also stated in the same letter that on impact such missiles discharge highly toxic material which constitutes a direct threat to public health.

5. Mr. A.N. King, from the Middle East Department of the Foreign and Commonwealth Office, said in response to a query from a humanitarian relief organization that, on the order of the Ministry of Defence, British tanks had used missiles containing DU during the Gulf war.

6. In a letter dated 16 June 1998 addressed to the Security Council (S/1998/517), the Permanent Representative of the United Kingdom of Great Britain and Northern Ireland, Mr. John Weston, asserted that British tanks had fired 100 DU rounds during the Gulf war.

7. The Foreign Minister of Iraq addressed letters to the United Nations Secretary-General and the President of the Security Council concerning the admission by British officials of the use of DU shells by British and United States forces during their aggression against Iraq (S/1998/430, S/1998/601, A/53/165).

8. In a report published in the 10 April 1995 issue of Le Monde Diplomatique, the author, Mr. William M. Arkin, President of the Institute for Science and International Security in Washington, stated that United States aircraft had fired 940,000 30-mm shells, each containing 300 grammes of DU.

9. (?)

10. This kind of weapon is prohibited under the terms of the first (1899) and second (1907) Hague Agreements, the first (1925) and second (1949) Geneva agreements, the principles of the Nuremberg Charter of 1945, and international and humanitarian law.

11. The study prepared by UNEP and the Task Force on Environment in the Balkans showed the presence of great potential effects on health and the environment as a result of the use of DU during the Kosovo war of 1999.

12. A specialized group of staff of medical and scientific institutions was formed to conduct medical and scientific research and surveys to investigate the effects on public health and the environment of the use of radioactive weapons by the coalition forces in their aggression against Iraq. Five areas were selected from the Province of the City of Basrah for the conduct of the field studies and site measurement as well as the taking of samples (these areas being Safwan, al-Zubayr, Jebel Sanam, North Rumeilah Field, South Rumeilah Field). The object was to determine the increase in the levels of radioactivity resulting from pollution caused by the remnants and shrapnel of those weapons as well as by the destroyed targets. The study included taking field measures and conducting laboratory tests on samples from the living and non-living environment in these areas (air, soil, surface and underground water, animal and plant biological tissues). Among the samples taken were: 124 measures of air exposure, 124 soil samples, 58 surface and underground water samples, 158 biological samples (plant and animal tissues). These samples were tested in the laboratories of the Radioactive Environment Section of the Iraqi Nuclear Energy Organization, using a high-purity spectroscope (gamma, germanium).

13. Laboratory tests showed the presence of radioactivity in these areas, where there was an increase in the concentration of radioactive nucleides, such as Thorium-234, which reached 65,200 becquerel/kg near armour hit by these weapons. There was also a high concentration of Radium-226 ranged between 36,205 and 995 becquerel/kg in 65 soil samples.

14. Tests on water samples showed an increase in deposits in water channels in the areas of al-Zubayr and Jebel Sanam regarding the isotope Radium-2226. Laboratory tests also confirmed the presence of a concentration of the isotopes Thorium-234 and Radium-226 in some Stipa Capensis and Haloxyion Salicornicom. But some other biological plant samples showed a concentration of Bismuth-214 and Lead-214.

15. With regard to the effect of an increase in radiation on man, there are indications that DU particulates are permanently retained in the lungs upon inhalation, these particulates destroy cells and cause cancers. When ingested via the digestive system, their effect would be much greater as uranium is a toxic radioactive heavy metal. Through the mouth and digested food DU enters the bloodstream and goes to all organs of the body, with most of it concentrated in the kidneys, bones and liver. The kidney is considered as one of the organs most sensitive to DU. In general, there are still some unknowns among the numerous factors needed to determine the danger of exposure to radioactive doses coming from gamma rays in particular.

16. In order to determine the harm from human exposure to radiation, it is essential to determine the radiation dose absorbed by the human body which is the effective dose equivalent resulting from both the external dose and the internal dose. Thus increased exposure to ionized radiation resulting from the use of these weapons would lead to:

(a) Immediate death upon acute exposure to very high doses;

(b) Increase in the incidence of cancer (skin, thyroid, leukaemia, etc) upon exposure to low doses for extended periods of time (chronic exposure),

(c) Genetic effects resulting from damage to reproductive cells which in turn leads to genetic mutation,

(d) Birth defects

17 Equipment and instruments used to measure active radioactivity on site and to take samples

Environmental samples were selected and collected in accordance with the international criteria and specifications adopted for this kind of radiation test Table 1 lists the equipment used

[ ] was used to determine the sample collection sites Figure 1 shows the selection sites in the areas of destroyed armour within a circle 10 metres in diameter around the armour In other areas, underground and surface water samples were collected as well as parts of plant and animal tissue for subsequent laboratory tests For measuring radioactivity, soil samples were taken from different sites at a 10-15 cm depth Following is a list of the samples collected and their corresponding measures

Measure of air exposure	124
Soil samples	124
Surface and underground water samples	58
Biological samples (animal and plant tissues)	158

Samples were also collected and tested in accordance with the recommendations and specifications of IAEA

18 Natural radiation in the areas studied

The natural level of radiation in the various areas covered by the study was determined on the basis of previous reports and research or of samples taken from the various elements of the environment and tested to determine the natural level Table 2 shows the levels or concentrations

19 Results of the laboratory tests and their discussion

Laboratory tests to measure the radiation activity of the field samples of the various elements of the environment were conducted at the Laboratory Department of the Iraqi Atomic Energy Organization The radiation activity was measured by a gamma spectroscope (high-purity germanium) as the pollution resulting from DU shells is in the form of greater concentrations of U-238 nucleides, the basic component of the shell, especially the nucleides emitting gamma rays Tables 3 and 4 show the results of these tests

20. Discussion of results

From the tables of soil test results we can notice an increase in the concentrations of some radioactive mucleides exceeding the natural level in these areas. An increase in the concentration of Th-234 is a clear indication of a high concentration of the isotope U-238. Th-234 and U-238 should be in a state of equilibrium.

We can see in table 2 that the natural concentration level of Radium-238 in the soil of the region is 42 and 24 becquerel/kg compared with a maximum of 65,200 becquerel/kg and a minimum of 1,830 becquerel/kg in the areas adjacent to armour.

21. It was found that the concentration of the isotope U-235 in the isotope U-238 had a weight ratio lower than the normal ratio of 0.7 per cent, the samples tested showed these ratios 0.2 per cent, 0.3 per cent, 0.3 per cent. The extraction of U-235 from it reduced its weight ratio below the normal level.

22. Sixty-one soil samples indicated an increase in U-235 concentration ranging from 1,079 to 3.2 becquerel/kg near armour, while the detector does not sense the presence of this isotope in the nearby areas of Iraq with natural radiation. It is observed that the soil on which there is damaged armour contains more radioactive material than soils further away, the concentrations fall as one moves further away from those armour sites.

23. In the tests on water and deposit samples collected from water canals, there is an increase in U-238 nucleides in the water deposits in Khawr al-Zubayr, North Rumeilah Field and Jebel Sanam. There is an increase in Radium-226 nucleides.

24. There is a natural concentration of radium deposits ranging between 40 and 30 becquerel/kg compared to 102 becquerel/kg in the water deposits of Khawr al-Zubayr and 90 becquerel/kg in the water deposits of Jebel Sanam.

25. These radioactive nucleides are conveyed from the areas of damaged armour to neighbouring rivers by torrents and water canals.

26. Tests on biological samples also showed (table 4) the presence of high concentrations in some natural plant tissue in the areas such as concentrations of nucleides of the isotope Thorium-234, Radium-226, Bismuth-214 and Lead-214.

27. The samples taken from the proximity of damaged armour were uniquely characterized by concentrations of thorium and radium as in site samples; all the other samples had in common a concentration of bismuth and lead.

28. The concentration of thorium and radium was limited to Haloxyion Salicornicom and Stipa Capensis. Therefore, these values were used to find the coefficient of transfer from soil to plant in the previous studies because these plants constitute more than 60 per cent of the plants of the region.

29. In the remaining plant samples listed in table 4, the concentration of the isotopes Bismuth-214 and Lead-214 was 1-3 times the concentration in RB and TH samples taken from the cities of Baghdad and Kirkuk. Results of tests on tomatoes, cucumbers, melons, onions, garlic, meat and fish also showed an increase in concentration of the isotopes Bismuth-214 and Lead-214 as well as a strong relationship between the increase in concentrations of radioactive isotopes in plants and soils from which those samples were taken. In other words, plants in the vicinity of damaged armour contained radioactive isotopes, those further away did not contain such isotopes.

30. The presence of the element thorium which has a short half-life of 24.1 days indicates the presence of Uranium-238 which is considered the producer, but the concentration of Bismuth-214 and Lead-214, which have very short half-lives, indicates the birth of Bismuth-210, Lead-210, Polonium-210, and before all those Radon-222, for they all constitute a part of the Uranium-238 chain.

31. An epidemiological-clinical and statistical-descriptive study was undertaken on the incidence of cancer among the male military personnel operating in the southern sector of the theatre of operations in the period 1991-1997. The study indicated an increase in the various clinical infections, with the infection of the lymphatic glands, together with leukaemia. Table 5 shows the total of cancer cases distributed according to year of diagnosis and registration for military personnel exposed to the causing agent (depleted uranium).

32. With regard to the civilian population in the country as a whole, diseases and health aspects of all cases registered in the period 1991-1997 were the subject of study. A great increase was noted in cancer, genetic defects, abortions, cataracts, kidney failure, shrinkage of the thyroid gland, and infertility. There was a very high increase in some diseases such as leukaemia, cancer of the lymphatic glands and cancer of the bones among the newborn (early loss of vision among children). There was also an increase in hereditary diseases associated with changes in chromosomes such as hereditary eye diseases (2.5), hereditary syndromes such as mongoloid children (6.60), abnormal increase in the number of organs and changes in their size, shape and location (1.3), reduced head size or total absence of it sometimes, and 14-month retardation in the growth of six-year-olds compared with their peers in the pre-aggression period.

33. Conclusions

- There is radioactive pollution in the areas of Safwan, al-Zubayr, Jebel Sanam, North Rumeilah Field and South Rumeilah Field, air detection measures are much higher than the normal background radiation in these areas prior to the aggression against Iraq, especially inside, outside and around the areas in which there is armour destroyed with DU shells.

- The soil of the areas covered by the study is polluted with uranium isotopes, the increase in concentrations of radioactive nucleides in the areas adjacent to the destroyed armour reached 65,200 becquerel/kg for Thorium-234. It was shown that 61 out of a total of 124 soil samples contained high concentrations of this isotope. The clearest indication of soil pollution with U-238 is the presence of high concentrations of Radium-226 which normally does not exceed 70 becquerel/kg in

Iraqi soil, laboratory tests showed a maximum level of 36,205 becquerel/kg and a minimum of 955 becquerel/kg in areas adjacent to destroyed armour. Out of a total of 124 samples from areas of destroyed armour, 65 samples indicated an increase in the concentration of this isotope.

- There is radioactive pollution in the deposits of water canals in the areas of al-Zubayr and Jebel Sanam, involving in particular the isotope Radium-226. This is an indication that the deposits are carried by rain and torrents from the locations of hit armour to nearby rivers and water canals.

- Laboratory tests proved the existence of concentrations of the isotopes Thorium-234 and Radium-226 in some Stipa Capensis and Haloxyion Salicornicom in the areas covered by the study. There is also an increase in the concentrations of Bismuth-214 and Lead-214. The samples which showed concentrations of isotopes of the Uranium-238 chain constituted 37 per cent of the total number of samples collected and tested.

- Radiation activity decreases gradually as we move further away from hit targets, many of which were moved into locations for repair and maintenance or collection and destruction. All these locations have now become a source of radioactive pollution.

In conclusion, the Government of the Republic of Iraq considers the States that used these weapons as having full international legal and humanitarian responsibility for the resulting health and environmental effects, and it reserves its right to claim compensation.